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39. The method of claim 14 wherein the similar device is the device provided and used to obtain the concentration measurement.

40. The method of claim 1 wherein the step of obtaining the solubility threshold is performed at any time prior to the step of applying the first mathematical function.

41. The method of claim 8 wherein the step of obtaining the solubility threshold is performed at any time prior to a step wherein the solubility threshold must be known.

42. The method of claim 11 wherein the step of obtaining the solubility threshold is performed at any time prior to a step wherein the solubility threshold must be known.

43. The method of claim 14 wherein the step of obtaining the solubility threshold is performed at any time prior to a step wherein the solubility threshold must be known.--

REMARKS

Applicant confirms the election of claims 1 to 15 and, as such, has cancelled claims 16 to 19. This election is made without prejudice to filing a divisional application for the non-elected claims.

Claims 1 to 15 remain in the application.

Claims 1 and 8 have been amended to more clearly define the invention for which protection is sought. In particular, in closely studying the application, Applicant noted that the claims should be amended to define the invention in its broadest sense, which is to determine the response of a gas-in-liquid measurement device to measure a gas concentration in a liquid when the gas is in the bubble state in the liquid. This determined response can be used in one embodiment, now recited in claims 6 and 7, to generate a correction factor. Claims 1 and 8 have been further amended to clarify the meaning of various terms contained therein and to address the Examiner's comments with respect to 35 U.S.C. 112.

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Claims 2, 4 to 7, 10, 11 and 14 have also been amended to more clearly define the invention for which protection is sought, to provide antecedent support for all recited elements and to address the Examiner's comments with respect to 35 U.S.C. 112.

New claims 20 to 43, which are fully supported by the application as filed, have been added.

Applicant respectfully requests reconsideration and withdrawal of the rejections to the claims in view of the following remarks.

Claim Rejections – 35 U.S.C. 112

The Examiner rejected claims 1 to 15 under 35 U.S.C. 112, second paragraph, since the claims did not define the process by which the correction factor was generated from the first and the second function. It is noted that the term correction factor has been removed from claims 1 and 8, but remains in claims 11 and 14. Claims 11 and 14 have been amended to define the two methods set out in the disclosure for determining the correction factor.

The Examiner further required clarification of the term "function". The claims have been clarified by use of the term "mathematical function" in place of "function". It is believed that the use of the term "mathematical function" and clear teaching in the application such as in the Example at page 13, line 25 to page 14, line 9, render the claims definite.

Favorable consideration is respectfully requested.

Claim Rejections – 35 U.S.C. 103

The Examiner has rejected claims 1 to 3, 6, 8, 9, 11, and 13 to 15 under 35 U.S.C. 103 (a) as being unpatentable over US Patent 5,729,342 to Yokoyama et al (hereinafter Yokoyama) in view of US Patent 5,528,923 to Ledez et al (hereinafter Ledez).

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Applicant submits that claims 1 to 15 and 20 to 43, as filed and as amended, are directed to totally different subject matter than the cited prior art and, therefore, contain many limitations not taught or suggest by the cited prior art. Thus, claims 1 to 3, 6, 8, 9, 11, and 13 to 15 patentably distinguish over the cited prior art. In particular, Applicant's invention of claims 1 and 8 relates to a method for determining the response of a gas-in-liquid concentration measurement device when measuring a concentration of a gas in a liquid when the concentration of gas is above the solubility threshold and the invention of claims 11 and 14 applies the response determination for preparing a device for use and for analyzing the concentration of a gas in a liquid. This invention overcomes calibration and use difficulties with gas-in-liquid concentration measurement devices when the liquid to be analyzed contains the gas in a concentration above its solubility threshold where the gas is present both in solution and as entrained bubbles. The present method does not correct for the existence of bubbles in the liquid sample, but rather seeks to determine a response for concentration measurements above the solubility threshold based on the device response for samples having gas concentrations below the solubility threshold and can be applied, for example, to prepare a device for use or to obtain a total gas concentration for both solubilized gas and bubble state gas in the liquid.

Yokoyama is not at all concerned with such a method, instead Yokoyama teaches a method for analyzing the concentration of components in a fluid solution that can be contaminated with gas bubbles. In Yokoyama, the method is not primarily concerned with quantifying the concentration of gas in the bubbles, but rather the bubbles are viewed as contaminants. Even where the percentage of gas in the bubbles is determined, it is only used to quantify and verify the concentrations of other components in a sample since the bubbles are contaminants.

Since Yokoyama is not at all concerned with the present invention, claims 1, 8, 11 and 14 each contain many limitations not taught or suggested by Yokoyama. In fact, Applicant submits that Yokoyama teaches almost nothing that overlaps with the presently claimed invention. For example Yokoyama does not teach: (i) obtaining the solubility threshold for a gas/liquid combination; (ii) using a device to measure gas

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concentrations at known actual concentrations to permit generation of a first mathematical function representing device-measured concentrations versus actual concentrations of the gas in the liquid; (iii) determining a measured concentration of the gas in the liquid at about the solubility threshold; and (iv) using the measured concentration at about the solubility threshold to determine a second mathematical function representative of measured concentration versus actual concentration above the solubility threshold.

The Examiner has noted that Yokoyama is deficient in teaching various aspects of the invention, but has cited Ledez as teaching these deficiencies. However, Applicant submits that Ledez adds nothing to Yokoyama that would render the claims obvious. Applicant notes that the Examiner's comment:

"whereas Applicants compare solubility thresholds to determine the content of gas"

is erroneous. Applicants do not compare solubility thresholds in any aspect of their invention. As set out at page 9, lines 11 to 14, Applicants indicate that they obtain the solubility threshold of a given gas/liquid combination by reference to texts or by known static tests. The invention does not focus on obtaining the solubility threshold but, using the response of device-measured concentrations of a selected gas/liquid combination below the solubility threshold to deduce the response of device-measured concentrations above, and possibly at, the solubility threshold of that selected gas/liquid combination. Ledez does not teach or suggest such an invention.

For the reasons stated above, Applicant respectfully submits that Yokoyama does not teach or suggest the invention of claims 1, 8, 11 or 14 and Ledez adds nothing that would render the claims obvious. Applicants trust that with the amendments clarifying the claim language, the Examiner will appreciate the significant differences between the cited prior art and the present invention and withdraw the rejections to Claims 1 to 15 under 35 U.S.C. 103(a) based on Yokoyama in view of Ledez.

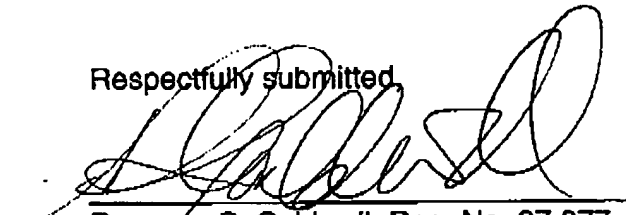
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Conclusions

In light of the arguments presented by applicant herein, applicant submits that claims 1 to 15 and 20 to 43 are in a condition for allowance. Applicant respectfully requests that the Examiner withdraw all rejections with regard to the claims in reliance on one or more of the grounds submitted by the applicant.

Respectfully submitted,


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